Raster Coastal Map Series Showing Hydrography and Topography Found on NOAA's Charted Nautical Charts for All Near-Shore Geographic Areas of the U.S.

Metadata also available as

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
  Citation:
    Citation_Information:
      Originator:
        Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), Office of Coast Survey (OCS) , Coast Survey Development Laboratory (CSDL)
      Publication_Date: 20010110
      Title:
        Raster Coastal Map Series Showing Hydrography and Topography Found on NOAA's Charted Nautical Charts for All Near-Shore Geographic Areas of the U.S.
      Geospatial_Data_Presentation_Form: raster digital data
      Series_Information:
        Series_Name: Coastal Map Series
        Issue_Identification: kapp number
      Publication_Information:
        Publication_Place: Silver Spring, MD
        Publisher: NOAA's Ocean Service, Office of Coast Survey
      Online_Linkage: <http://historicals.ncd.noaa.gov/cm_vs_query.asp>
  Description:
    Abstract:
      The Coast Survey Development Laboratory (CSDL) has developed techniques and software to create a digital, geo-referenced coastal map raster data layer. The data layer will be derived directly from the current edition of the NOS nautical chart and contain the hydrography, topography and shoreline base information. Each coastal map data layer will be offered as a single GEOTIFF file for ease of transfer and use

by the coastal stewardship community. Additionally, users can disseminate the coastal map files along with their data to their constituents.

Purpose:
> There has been an increasing demand from the coastal stewardship community and the general public for non-proprietary version of the NOS nautical chart images to use as backdrops to Geographic Information System (GIS) derived products. Utilizing their own data, GIS users will be able to overlay the coastal map layer to create new views of their data necessary for advanced analysis and presentation.

Supplemental_Information:
> The data is intended for use as an imagery backdrop to represent the charted hydrography and topography of a given area. It is in no way intended for navigational uses. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for use of this data.

Time_Period_of_Content:
> *Time_Period_Information:*
>> *Range_of_Dates/Times:*
>>> *Beginning_Date:* 200110
>>> *Ending_Date:* 200310
> *Currentness_Reference:* publication date

Status:
> *Progress:* In work
> *Maintenance_and_Update_Frequency:* As needed

Spatial_Domain:
> *Bounding_Coordinates:*
>> *West_Bounding_Coordinate:* 141
>> *East_Bounding_Coordinate:* -61.1
>> *North_Bounding_Coordinate:* 74.8
>> *South_Bounding_Coordinate:* -14.6

Keywords:
> *Theme:*
>> *Theme_Keyword_Thesaurus:* none
>> *Theme_Keyword:* Coastal Maps
>> *Theme_Keyword:* Geographic Information Systems
>> *Theme_Keyword:* Hydrography
>> *Theme_Keyword:* Topography
>> *Theme_Keyword:* GEOTIFF
>> *Theme_Keyword:* Shoreline
>> *Theme_Keyword:* Base Layer
>> *Theme_Keyword:* Nautical Charts
>> *Theme_Keyword:* oceans
> *Place:*
>> *Place_Keyword_Thesaurus:* none
>> *Place_Keyword:* U.S. Exclusive Economic Zone
>> *Place_Keyword:* U.S. Territories
>> *Place_Keyword:* U.S. Waters
>> *Place_Keyword:* EEZ

Access_Constraints: none

Use_Constraints:
> The data is intended for use as an imagery backdrop to represent the charted hydrography and topography of a given area. It is in no way intended for navigational uses. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for

use of this data.
Point_of_Contact:
    Contact_Information:
        Contact_Organization_Primary:
            Contact_Organization:
                NOAA, NOS, OCS, CSDL, Cartographic & Geospatial Technology Program
        Contact_Position: Chief, Cartographic & Geospatial Technology Program
        Contact_Address:
            Address_Type: mailing and physical address
            Address: 1315 East West Hwy.
            City: Silver Spring
            State_or_Province: MD
            Postal_Code: 20910
            Country: USA
        Contact_Voice_Telephone: (301) 713-2645
        Contact_Electronic_Mail_Address: curtis.loy@noaa.gov
Native_Data_Set_Environment:
    Windows NT 4.0 Operating System, Intergraph's CIT Format Binary Raster, MicroStation/IRASB, ArcView 8, Coast Survey Development Laboratory developed programs
Cross_Reference:
    Citation_Information:
        Originator: NOAA, NOS, OCS, Coast Survey Development Laboratory
        Publication_Date: 20010110
        Title: Extracted Vector Shoreline
        Edition: First
        Geospatial_Data_Presentation_Form: vector digital data
        Series_Information:
            Series_Name: Extracted Vector Shoreline Data Series
            Issue_Identification: kapp number
        Publication_Information:
            Publication_Place: Silver Spring, MD
            Publisher: NOAA's Ocean Service, Office of Coast Survey
        Online_Linkage: <http://historicals.ncd.noaa.gov/cm_vs_query.asp>

Data_Quality_Information:
    Attribute_Accuracy:
        Attribute_Accuracy_Report:
            The data accuracy is checked against its source nautical chart only. Nautical charts are verified and updated as part of an ongoing process to create a cartographic representation of the best available data collected through the years employing a variety of collection techniques and provided to the Office of Coast Survey using numerous different data types, scales, datums, and projections. Prior to 1995, the paper charts were composed manually. In 1995, the paper charts were scanned to create the raster charts. Both the paper and raster charts are composed from the same digital files. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for use of this data.
    Logical_Consistency_Report: Observations are consistent throughout this raster data set.

Completeness_Report:

The NOAA Nautical Chart Manual Seventh (1992) Edition contains a complete list of selection criteria, generalization, and definitions that were used to determine what is included in the data set. Charting material consists principally of topographic and hydrographic surveys made by NOS supplimented by miscellaneous surveys and textual information provided by other organizations. All material must be critically examined, with paticular attention directed to the actual date of the survey, geographic datum, depth unit, plane of reference, purpose and quality of the survey, and whether it is an original source or from another compilation. A partial listing of sources of cartographic data follows: U.S. Army Corps of Engineers, U.S. Coast Guard, National Imagery and Mapping Agency, NOAA Office of Coast Survey/National Ocean Service, U.S. Geological Survey, St. Lawrence Seaway Development Corp, Environmental Protection Agency, U.S. National Park Service, State Department, NOAA National Weather Service, NOAA National Marine Fisheries, National Archives, NOAA National Environmental Satellite Data and Information Service, state and local sources, private sources, and international sources.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Nautical charts are updated as part of an ongoing process to create a cartographic representation of the best available data collected through the years employing a variety of data collection technology and techniques and provided to the Office of Coast Survey using numerous different scales, datums, and projections. Technology has allowed for a drastic increase in positional accuracy. However, historical data has not been superseded in many areas. The availability of digital chart products and Differential Global Positioning System (DGPS) has drastically changed navigation. Navigation systems using DGPS for locating a vessel's position on the earth have put mariners in a unique predicament due to a false perception of greater positional accuracy of features portrayed on the charts. In many cases, the DGPS is more accurate than the surveying technology that was used to put the soundings and features on the nautical chart, paper or raster. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for use of this data.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

Depths are biased for shoals. Charts use multiple vertical datums (Mean Higher High Water [MHHW]; Mean High Water [MHW]; Mean Sea Level [MSL]; Mean Low Water [MLW]; Low Water Datum [LWD]; Mean Lower Low Water [MLLW]; Gulf Coast Low Water Datum [GCLWD].) The NOAA Nautical chart manual has an extensive description of the vertical datum used. Sounding datums used in coastal areas for nautical charting are determined by local observations, ideally over a period of 19 years. The official time period over which tide observations are taken to obtain mean values for tidal datums has been standardized by NOS. The present National Tidal Datum Epoch is from 1960 through 1978. There have been two epochs used previously this century: 1924 through 1942, and 1941 through 1959. The individual chart title block documents the datum used for that chart. Nautical charts are updated as part of an ongoing process to create a cartographic representation of the best available data collected through the years employing a variety of data collection technology and techniques. As technology has allowed for a drastic increase in survey accuracy historical data has not been superseded for many

areas. Therefore, soundings found on a single chart may contain mutiple collection dates and be only accurate as the technology used to collect them allowed. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for use of this data.

Lineage:
    Source_Information:
        Source_Citation:
            Citation_Information:
                Originator: NOAA, NOS, OCS, Marine Charting Division
                Publication_Date: 19950101
                Title: Nautical Charts
                Geospatial_Data_Presentation_Form: raster digital data
                Series_Information:
                    Series_Name: NOAA Nautical Charts
                    Issue_Identification: kapp number
                Publication_Information:
                    Publication_Place: Silver Spring, MD
                    Publisher: NOAA's Ocean Service, Office of Coast Survey
        Source_Scale_Denominator: 10,000 to 80,000
        Type_of_Source_Media: Raster Images
        Source_Time_Period_of_Content:
            Time_Period_Information:
                Range_of_Dates/Times:
                    Beginning_Date: 19950101
                    Ending_Date: present
            Source_Currentness_Reference: publication date
        Source_Citation_Abbreviation: Source Nautical Chart
        Source_Contribution:
            All information in Coastal Maps is derived from the Source Nautical Chart.
    Process_Step:
        Process_Description:

The processing technique associated with coastal map production is quite simple. First, each binary separate raster plate (Intergraph CIT) is opened using the standard raster nautical chart production software (MicroStation/IRASB). A cartographer "cleans" the plates by removing all navigational and other additional information that is not native to the coastal map series. All the cleaned binary raster files for a given chart are then combined and converted to a packbits compressed TIFF format that is about 5MB. A coorsponding world file is created using software developed by Cartographic & Geospatial Technology Program (CGTP) and ArcView 8 on a NT 4.0 operating system. The TIFF has emerged as one of the world's most popular raster file formats but has limitations in cartographic applications, since it does not have the structure for conveying geographic information. Several proprietary solutions exist for recording geographic information in TIFF tags. Intergraph Corporation has a geotie tag implementation, but this remains within the private TIFF tagset registered exclusively to Intergraph. Other companies (such as ESRI, MapTech, and Island Graphics) have geographic solutions that are also proprietary or limited by specific application to their software's architecture. Many GIS companies, raster data providers, and clients demand that the companies concerned with delivery and exploitation of raster geographic imagery work with a publicly available, platform interoperable standard for the support of

geographic TIFF imagery. Coastal Map GEOTIFF images are supported by a world file that is able to be read and positioned correctly in any GIS or digital mapping system which supports the "GEOTIFF" standard. The savings to the users and providers of raster data and software are significant. With a platform interoperable coastal map, companies will not have to develop resources in support of proprietary formats. NOAA will be able to produce off-the-shelf imagery products, which can be delivered in the "generic" TIFF format quickly and at low cost. End-users will have the advantage of developed software that exploits the GEOTIFF tags transparently. Most importantly, the same raster GEOTIFF image which can be read and modified in one GIS environment may be equally exploitable in another GIS environment without requiring any file duplication or import/export operation.

Source_Used_Citation_Abbreviation: Source Nautical Chart

Process_Date: 20010801 - Present

Spatial_Data_Organization_Information:

    Indirect_Spatial_Reference: The Coastal United States

    Direct_Spatial_Reference_Method: Raster

Spatial_Reference_Information:

    Horizontal_Coordinate_System_Definition:

        Geographic:

            Latitude_Resolution: 0.01

            Longitude_Resolution: 0.01

            Geographic_Coordinate_Units: decimal seconds

        Geodetic_Model:

            Horizontal_Datum_Name: NAD 83

            Ellipsoid_Name: Clark 1866

            Semi-major_Axis: 6,378,206.4

            Denominator_of_Flattening_Ratio: 294.98

    Vertical_Coordinate_System_Definition:

        Depth_System_Definition:

            Depth_Datum_Name:

                Mean higher high water, Mean high water, Mean sea level, Mean low water, Low water datum, Mean lower low water, Gulf Coast low water datum

            Depth_Resolution: 1

            Depth_Distance_Units: feet, meters, fathoms

            Depth_Encoding_Method: Explicit depth coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:

    Overview_Description:

        Entity_and_Attribute_Overview:

            A hydrographic chart is a nautical chart showing depths of water, nature of bottom, contours of bottom and coastline, and tides and currents in a given sea or sea and land

area. Charted depths are the vertical distance from the tidal datum to the bottom. The bottom type is the feature of the bottom including the material of which it is composed and its physical characteristics. Bottom contours are lines joining points of equal vertical distance above or below a datum. Finally, coastline is a line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters.

        Entity_and_Attribute_Detail_Citation: NOAA Nautical Charting Manual (1992)

Distribution_Information:
    Distributor:
        Contact_Information:
            Contact_Organization_Primary:
                Contact_Organization:
                    NOAA, NOS, OCS, CSDL, Cartographic & Geospatial Technology Program
            Contact_Position: Chief, Cartographic & Geospatial Technology Program
            Contact_Address:
                Address_Type: mailing and physical address
                Address: 1315 East West Hwy. N/CS12
                City: Silver Spring
                State_or_Province: MD
                Postal_Code: 20910
                Country: USA
            Contact_Voice_Telephone: (301) 713-2645
            Contact_Electronic_Mail_Address: curtis.loy@noaa.gov
    Resource_Description: Downloadable data
    Distribution_Liability:
        The data is intended for use as an imagery backdrop to represent the charted hydrography and topography of a given area. It is in no way intended for navigational uses. The data accuracy is checked against its source nautical chart only. NOAA assumes no liability for use of this data.
    Standard_Order_Process:
        Digital_Form:
            Digital_Transfer_Information:
                Format_Name: GEOTIFF
            Digital_Transfer_Option:
                Online_Option:
                    Computer_Contact_Information:
                        Network_Address:
                            Network_Resource_Name:
                            <http://chartmaker.ncd.noaa.gov>
        Fees: none

Metadata_Reference_Information:
    Metadata_Date: 20010801
    Metadata_Review_Date: 20021120
    Metadata_Future_Review_Date: As needed

Metadata_Contact:
  Contact_Information:
    Contact_Organization_Primary:
      Contact_Organization:
        NOAA, NOS, OCS, CSDL, Cartographic & Geospatial Technology
        Program
    Contact_Position: Chief, Cartographic & Geospatial Technology Program
    Contact_Address:
      Address_Type: mailing and physical address
      Address: 1315 East West Hwy. N/CS12
      City: Silver Spring
      State_or_Province: MD
      Postal_Code: 20910
      Country: USA
    Contact_Voice_Telephone: 301) 713-2645
Metadata_Standard_Name: FGDC Content Standard for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

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